# Non-*pestis* Yersiniosis

*Yersinia* spp. other than *Yersinia pestis*

## DISEASE REPORTABLE WITHIN 24 HOURS OF DIAGNOSIS

Per N.J.A.C. 8:57, healthcare providers and administrators shall report by mail or by electronic reporting within 24 hours of diagnosis, confirmed cases of listeriosis to the health officer of the jurisdiction where the ill or infected person lives, or if unknown, wherein the diagnosis is made. A directory of local health departments in New Jersey is available at http://localhealth.nj.gov/.

If the health officer is unavailable, the healthcare provider or administrator shall make the report to the Department by telephone to (609) 826-5964, between 8:00 A.M. and 5:00 P.M. on non-holiday weekdays or to (609) 392-2020 during all other days and hours.

March 2025

# 1 THE DISEASE AND ITS EPIDEMIOLOGY

## A. Etiologic Agent and Background

Non-*pestis* yersiniosis is caused by the bacteria *Yersinia enterocolitica* or *Yersinia pseudotuberculosis*.

These bacteria most commonly cause infections in children under 10 years of age, or adults over 70 years of age, through contaminated food. While these gram-negative organisms can be isolated from many animals and are most often transmitted to humans from undercooked or contaminated pork, pathogenic serotypes have also been found in numerous other foods, milk products, and water.

## B. Clinical Description

### 1. Signs and Symptoms

Signs and symptoms of *Yersinia* infection vary depending on the age of the person infected.

In young children, symptoms include fever, pain in the abdomen, and diarrhea that can be bloody. Sore throat can also occur, particularly in children. In older children and in adults, symptoms are often fever and pain on the right side of the abdomen. The pain might be confused with an inflamed or infected appendix (appendicitis).

### 2. Clinical Features

Enterocolitis is the most common clinical presentation. Symptoms of yersiniosis typically include abdominal pain, diarrhea (that can be bloody and may persist for several weeks), fever, sore throat, and mesenteric adenitis. People with diseases that cause high iron levels (e.g., hemochromatosis, thalassemia), including those on iron chelation treatment, are at greater risk for infection and severe disease. Infection with *Y. enterocolitica* occurs most often in young children.

Necrotizing enterocolitis has been described in young infants. Reactive arthritis affecting the wrists, knees, and ankles can occur, usually 1 month after the initial diarrhea episode, resolving after 1–6 months. Erythema nodosum, manifesting as painful, raised red or purple lesions along the trunk and legs, can occur, and usually resolves spontaneously within 1 month.

## C. Reservoirs

The reservoirs for *Yersinia* species are primarily animals, notably pigs for *Y. enterocolitica* and avian and mammalian hosts such as rodents and other small mammals for *Y. pseudotuberculosis*.

**D. Modes of Transmission**

Transmission of *Yersinia* spp. can occur from consuming or handling contaminated food, commonly raw or undercooked pork products (e.g., chitterlings); consuming milk that was not pasteurized, inadequately pasteurized, or contaminated after pasteurization; or drinking untreated water. *Yersinia* spp. also can be transmitted by direct or indirect contact with animals through the fecal–oral route. Pigs are a major reservoir of pathogenic *Y. enterocolitica*, but a variety of other domestic (e.g., dogs), farm (e.g., cattle), and wild (e.g., deer) animals can harbor *Yersinia* spp. Transmission through blood product transfusions has been reported.

**E. Incubation Period**

The incubation period is generally four to six days but can range from 1 to 14 days.

**F. Period of Communicability or Infectious Period**

The disease is communicable for as long as the infected person is symptomatic and excretes *Yersinia* in stool (approximately two to three weeks), with untreated patients shedding for as long as three months. Children and adults have been reported with prolonged asymptomatic carriage.

**G. Epidemiology**

*Y. enterocolitica* is an uncommon cause of illness outbreaks in the United States. In the United States, *Y. enterocolitica* causes approximately 92% of *Yersinia* infections with known species information, accounting for approximately 117,000 illnesses, 640 hospitalizations, and 35 deaths every year. Children are infected more often than adults, with the highest isolation rates reported during the cold season in temperate climates (including North America). The most important source of infection of *Y. enterocolitica* appears to be pork. *Y. pseudotuberculosis* is primarily a zoonotic disease with humans as incidental hosts. In New Jersey approximately 50 cases are reported each year.

# 2 NJDOH CASE DEFINITION

**A. Clinical Criteria**

A person with a clinically compatible illness. Common presentations of illness include fever (measured or subjective), diarrhea (bloody or non-bloody), or abdominal pain that may be severe enough to mimic appendicitis. However, presentations of extraintestinal illness can include sepsis, wound infection, or soft tissue infections, and gastrointestinal signs may be absent in these instances. Post-infectious, immune-mediated syndromes such as reactive arthritis and erythema nodosum are not directly caused by the infection and are not included as part of the clinical criteria.

**B. Laboratory Criteria for Diagnosis**

1. **Confirmatory laboratory evidence:**
    - Isolation of non-*pestis Yersinia* spp. by culture from a clinical specimen.

2. **Presumptive laboratory evidence:**
    - Detection of non-*pestis Yersinia* spp. by culture from a clinical specimen (e.g., stool or blood specimen) using a Nucleic Acid Amplification Test (NAAT) or other molecular testing method.

**C. Epidemiologic Linkage**

A person who shares an exposure with (or is exposed to) a confirmed or probable case of non-*pestis* yersiniosis.

**D. Case Classification**

1. **Confirmed**
    - A person who meets confirmatory laboratory evidence.

2. **Probable**
    - A person who meets the presumptive laboratory evidence;

    **OR**

    - A person who meets clinical criteria **AND** epidemiologic linkage criteria.

**E. Criteria for Distinguishing a New Case from an Existing Case**

The following criteria should be used to distinguish a new case of non-*pestis* yersiniosis from reports or notifications that should not be enumerated as a new case for surveillance:

- A repeat culture, NAAT, or other molecular test result more than 365 days of initial report (e.g., specimen collection date) should be enumerated as a new case for surveillance.
- When two or more non-*pestis Yersinia* spp. are detected from one or more specimens from the same individual, each identified *Yersinia* spp. should be enumerated as a separate case.

**F. Differences from CDC Case Definition**

There are no substantive differences between the NJDOH and CDC case definitions.

# 3 LABORATORY TESTING

The NJDOH Public Health and Environmental Laboratories (PHEL) does not routinely test clinical and food samples for *Yersinia* spp. in stool specimens. If testing is needed in an

outbreak situation, please contact Foodborne and Waterborne Disease Unit (FWD Unit) staff within the Communicable Disease Service (CDS) to discuss alternatives.

The FWD Unit within CDS will determine if testing of food items implicated in clusters or outbreaks is warranted. NJDOH can help coordinate pickup of food samples and testing at PHEL.

# 4 PURPOSE OF SURVEILLANCE AND REPORTING REQUIREMENTS

- To identify transmission sources of major public health concern (e.g., a restaurant or commercially distributed food product) and to stop transmission.
- To provide education about reducing the risk of infection.

# 5 CASE INVESTIGATION

**A. Forms**

It is the health officer's responsibility to investigate the case by interviewing the patient and others who may be able to provide pertinent information about the case patient's illness. Some of the required information can be obtained from the patient's healthcare provider or the medical record. NJDOH recommends interviewing the patient and asking about exposure history (food, travel, activities), using the incubation period.

**B. Update CDRSS**

Please refer to the disease prioritization guidance that provides LHDs with timeframes for public health response and enter critical details in CDRSS: demographics, signs/symptoms, clinical status, laboratory information, patient location, industry/occupation, and sources of infections and risk factors for yersiniosis. Non-*pestis* Yersiniosis is a Priority Level 4 disease and critical details should be entered into CDRSS within 14 days. If critical details cannot be obtained, local health departments (LHDs) should document the reason for the delay and the anticipated time when these details will be available.

**C. Other Reporting/Investigation Issues**

Once LHD completes its investigation and assigns a report status of "LHD CLOSED," the FWD Unit will review the case and approve the case by changing the report status to "DHSS APPROVED." At this time, the case will be submitted to CDC and locked for editing. If additional information is received after a case has been placed in "DHSS APPROVED," you will need to contact the FWD Unit at NJDOH to reopen the case. This should be done only if relevant exposure becomes available, or the additional information changes the case status of the report.

# 6 CONTROLLING FURTHER SPREAD

**A. Isolation and Quarantine Requirements (NJAC 8:57)**

Food handlers (defined as any person who works to directly prepare or handle food, including healthcare or childcare providers) with yersiniosis are to be excluded from work until 24 hours after diarrhea and vomiting have resolved. In outbreak situations, special precautions such as the submission of additional stool specimens before returning to food handling duties may be warranted.

**B. Protection of Contacts of a Case**

Contacts with diarrhea who are food handlers shall be considered the same as case-patients and handled in the same fashion. No other restrictions need to be implemented otherwise.

**C. Managing Special Situations**

**1. Daycare Settings**

Because yersiniosis may be transmitted person to person through fecal-oral transmission, it is important to carefully follow up on cases of yersiniosis in a daycare setting.

General recommendations include the following:

- Children with *Yersinia* infection who have diarrhea should be excluded until their diarrhea has resolved.
- Children with *Yersinia* infection who have no diarrhea and are not otherwise ill may remain in the program if special precautions are taken (see section 8 below).
- Because most staff in childcare programs are considered to be food handlers, those with *Yersinia* in their stools (symptomatic or not) can remain on site but must not prepare food or feed children until their diarrhea has resolved and they have one negative stool test (taken at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

**2. School Settings**

Because yersiniosis may be transmitted person to person through fecal-oral transmission, it is important to carefully follow up on cases of yersiniosis in a daycare setting.

General recommendations include the following:

- Students or staff with *Yersinia* infection who have diarrhea should be excluded until their diarrhea has resolved.

- Students or staff with *Yersinia* infection who do not handle food, have no diarrhea or mild diarrhea, and are not otherwise ill may remain in the program if special precautions are taken (see section 8 below).
- Students or staff who handle food and have *Yersinia* infection (symptomatic or not) must not prepare food until their diarrhea has resolved and they have one negative stool test (taken at least 48 hours after completion of antibiotic therapy, if antibiotics are given).

**3. Community Residential Programs**

Actions taken in response to a case of yersiniosis in a community residential program will depend on the type of program and the level of functioning of the residents.

In long-term care facilities, residents with yersiniosis should be placed on standard (including enteric) precautions until their symptoms subside and they have two consecutive negative cultures for *Yersinia*. Staff members who give direct patient care (e.g., feed patients, give mouth or denture care, or give medications) are considered food handlers and are subject to food handler restrictions (see section 6A above). In addition, staff members with *Yersinia* infection who are not food handlers should not work until their diarrhea has resolved.

In residential facilities for the developmentally disabled, staff and clients with shigellosis must refrain from handling or preparing food for other residents until their diarrhea has resolved and they have one negative stool test (submitted at least 48 hours after completion of antibiotic therapy, if antibiotics are given). In addition, staff members with *Yersinia* infection who are not food handlers should not work until their diarrhea has resolved.

# 7 OUTBREAK SITUATIONS

If the number of reported cases of yersiniosis in a facility or region is higher than usual, or if an outbreak is suspected, investigate to determine the source of infection and mode of transmission. A common vehicle (such as food, water, or association with a daycare center) should be sought, and applicable preventive or control measures should be instituted. Control of person-to-person transmission requires special emphasis on personal cleanliness and sanitary disposal of feces. NJDOH staff will help determine a course of action to prevent further cases and perform surveillance for cases across jurisdictions that may be difficult to identify at a local level. In a case of an outbreak, immediately notify NJDOH by telephone at (609) 826-5964 during business hours and (609) 392-2020 after business hours and on weekends and holidays.

# 8 PREVENTIVE MEASURES

**A. Environmental Measures**

Implicated food items may be recalled by federal partners and recall notices will be shared by the Public Health Food Protection Program (PHFPP). If a commercial product is suspected, PHFPP will coordinate follow-up and provide technical assistance with traceback and environmental investigation (such as interpreting the New Jersey Food Code, conducting a hazard analysis and critical control point risk assessment, initiating enforcement actions, and collecting food samples).

**B. Personal Preventive Measures/Education**

To avoid future exposure, recommend that individuals:

- Always wash their hands thoroughly with soap and water before eating or preparing food, after using the toilet, and after changing diapers.
- After changing diapers, wash the child's hands as well as their own.
- In a daycare setting, dispose of feces in a sanitary manner.
- When caring for someone with diarrhea, scrub their hands with plenty of soap and water after cleaning the bathroom; helping the person use the toilet; or changing diapers, soiled clothes or soiled sheets.
- Avoid sexual practices that may permit fecal-oral transmission. Latex barrier protection should be emphasized as a way to prevent the spread of shigellosis to sexual partners as well as to prevent the exposure to and transmission of other pathogens.
- Keep flies from contaminating food.
- Anyone with diarrhea should not use a pool or swim in a pond.

**References**

1. [NJDOH] NJ Administrative Code: https://www.nj.gov/health/cd/reporting/acode/
2. [NJDOH] General Guidelines for Foodborne Illness in Food Handlers Work Exclusion List: https://www.nj.gov/health/cd/documents/topics/foodborne/foodhandler_exclusion_list.pdf
3. [CDC] Yersiniosis Webpage: https://www.cdc.gov/yersinia/about/index.html
4. [CSTE] 24-ID-08: Update to Standardized Surveillance Case Definition for Non-*pestis* Yersiniosis: https://cdn.ymaws.com/www.cste.org/resource/resmgr/position_state–ments_files_2023/24-ID-08_Non-pestis_Yersinio.pdf
5. Control of Communicable Diseases Manual (Heymann), Yersiniosis